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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,204	11/25/2003	Nisha D. Talagala	82225.P8426	8531

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EXAMINER
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EHNE, CHARLES

ART UNIT	PAPER NUMBER
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2113

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/723,204		TALAGALA ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Charles Ehne		2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,8,10,11,16-18,24,26,27,32-34,42,43 and 48 is/are rejected.
- 7) ☒ Claim(s) 3-7,9,12-15,20-23,30,35-39,41 and 44-47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-32 are not limited to tangible embodiments. In view of Applicant's disclosure. Specification paragraph [0029], lines 8-9, "The machine-readable medium may include a mechanism that provides (i.e., stores and/or transmits) information..." and lines 13-14, the codes or instructions on the medium are represented by signals (e.g., carrier waves signals, inferred signals...), which is not permissible under the Examination Guidelines for Computers - Related Inventions. As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,2,8,10,11,16-18,24,26,27,32-34,42,43 and 48 are rejected under 35 U.S.C. 102(e) as being unpatentable by Loaiza (7,020,835).

As to claims 1, Loaiza discloses a computerized method comprising:

defining a protection domain for a set of errors using an association between data and first integrity metadata, the protection domain to protect data traversing an input/output (I/O) datapath having a storage device and a first generation integrity point for a host as opposite endpoints (column 5, lines 29-30 & lines 57-63); and

defining a first sub-domain nested within the protection domain using an association between the data and second integrity metadata, the first sub-domain to further protect data traversing a portion of the datapath having a second generation integrity point as an endpoint (column 7, lines 16-20 & column 8, lines 22-26).

As to claim 2, Loaiza discloses the computerized method of claim 1 further comprising:

defining a second sub-domain nested within the protection domain using an association between the data and third integrity metadata, the second sub-domain to further protect data traversing a portion of the datapath having a third generation integrity point as an endpoint (column 8, lines 38-44).

As to claim 8, Loaiza discloses the computerized method of claim 1, wherein the portion of the datapath protected by the first sub-domain has one of the storage device and host as an opposite endpoint (Figure 3B).

As to claim 10, Loaiza discloses the computerized method of claim 1 further comprising:

detecting a data error within the protection domain using at least one of the first and second integrity metadata (column 8, lines 28-30); and

identifying a portion of the I/O data path as a potential source of the data error (column 7, lines 39-42).

As to claim 11, Loaiza discloses the computerized method of claim 10, wherein detecting a data error comprises:

validating the data at one of the first and second integrity points (column 8, lines 22-26).

As to claim 16, Loaiza discloses the computerized method of claim 1 further comprising:

establishing the first generation integrity point for the host (Figure 3B.220); and  
establishing the second generation integrity point for an intermediary component in the datapath (column 8, lines 38-44).

As to claim 17, Loaiza discloses a computer-readable medium having instructions to cause a processor to execute a method comprising:

defining a protection domain for a set of errors using an association between data and first integrity metadata, the protection domain to protect data traversing an input/output (I/O) datapath having a storage device and a first generation integrity point for a host as opposite endpoints (column 5, lines 29-30 & lines 57-63); and

defining a first sub-domain nested within the protection domain using an association between the data and second integrity metadata, the first sub-domain to further protect data traversing a portion of the datapath having a second generation integrity point as an endpoint (column 7, lines 16-20 & column 8, lines 22-26).

As to claim 18, Loaiza discloses the computer-readable medium of claim 17, wherein the method further comprises:

defining a second sub-domain nested within the protection domain using an association between the data and third integrity metadata, the second sub-domain to further protect data traversing a portion of the datapath having a third generation integrity point as an endpoint (column 8, lines 38-44).

As to claim 24, Loaiza discloses the computer-readable medium of claim 17, wherein the portion of the datapath protected by the first sub-domain has one of the storage device and host as an opposite endpoint (Figure 3B).

As to claim 26, Loaiza discloses the computer-readable medium of claim 17, wherein the method further comprises:

detecting a data error within the protection domain using at least one of the first and second integrity metadata (column 8, lines 28-30); and

identifying a portion of the I/O data path as a potential source of the data error (column 7, lines 39-42).

As to claim 27, Loaiza discloses the computer-readable medium of claim 26, wherein detecting a data error comprises:

validating the data at one of the first and second integrity points (column 8, lines 22-26).

As to claim 32, Loaiza discloses the. The computer-readable medium of claim 17, wherein the method further comprises:

establishing the first generation integrity point for the host (Figure 3B.220); and

establishing the second generation integrity point for an intermediary component in the datapath (column 8, lines 38-44).

As to claim 33, Loaiza discloses an apparatus comprising:

means for defining a protection domain for a set of errors using an association between data and first integrity metadata, the protection domain to protect data traversing an input/output (I/O) datapath having a storage device and a first generation integrity point for a host as opposite endpoints (column 5, lines 29-30 & lines 57-63);  
and

means for defining a first sub-domain nested within the protection domain using an association between the data and second integrity metadata, the first sub-domain to further protect data traversing a portion of the datapath having a second generation integrity point as an endpoint (column 7, lines 16-20 & column 8, lines 22-26).

As to claim 34, Loaiza discloses the apparatus of claim 33 further comprising:

means for defining a second sub-domain nested within the protection domain using an association between the data and third integrity metadata, the second sub-domain to further protect data traversing a portion of the datapath having a third generation integrity point as an endpoint (column 8, lines 38-44).

As to claim 40, Loaiza discloses the apparatus of claim 33, wherein the portion of the datapath protected by the first sub-domain has one of the storage device and host as an opposite endpoint (Figure 3B).

As to claim 42, Loaiza discloses the apparatus of claim 33 further comprising:

means for detecting a data error within the protection domain using at least one of the first and second integrity metadata (column 8, lines 28-30); and

means for identifying a portion of the I/O data path as a potential source of the data error (column 7, lines 39-42).

As to claim 43, Loaiza discloses the apparatus of claim 42, wherein the means for detecting a data error comprises:

means for validating the data at one of the first and second integrity points (column 8, lines 22-26).

As to claim 48, Loaiza discloses the apparatus of claim 33 further comprising:

means for establishing the first generation integrity point for the host (Figure 3B.220); and

means for establishing the second generation integrity point for an intermediary component in the datapath (column 8, lines 38-44).

### ***Allowable Subject Matter***

Claims 3-7,9,12-15,20-23,30,35,36-39,41 and 44-47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***



Applicant's arguments filed 11/21/2006 have been fully considered but they are not persuasive. Applicant states on page 8, lines 10-11, " thus, claims 17-32 are no in form for allowance and such indication is respectfully requested".

Examiner respectfully disagrees. In view of Applicant's disclosure. Specification paragraph [0029], lines 8-9, "The machine-readable medium may include a mechanism that provides (i.e., stores and/or transmits) information..." and lines 13-14, the codes or instructions on the medium are represented by signals (e.g., carrier waves signals, infrared signals...), which is not permissible under the Examination Guidelines for Computers - Related Inventions.

Applicant states on page 8, lines 20-24, "Loaiza teaches the use of a checksum and a logical check to verify the integrity of the data block for the protection domain spanning the entire datapath before the data block is written to a storage device. Accordingly, Loaiza only involves one protection domain. As such Loaiza does not disclose a nested sub-domain within the protection domain as set forth in the independent claims".

Examiner respectfully disagrees. Loaiza discloses additional data integrity checks that may be performed at other components that span the entire path between the host and the storage disk (column 8, lines 38-44). The volume manager, device driver and storage device controller can all perform independent integrity checks on the data blocks, which are nested in the protection domain (column 8, lines 41-43).

Applicant states on page 8, lines 23-28, "Further, because Loaiza does not teach the use of a nested sub-domain, Loaiza also does not teach "using an association

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between data and a second integrity metadata" as required by the independent claims. At most, Loaiza teaches the use of a checksum that is verified at various points along the datapath".

Examiner respectfully disagrees. Applicant states on page 3 of the specification, ¶ [0005], "Integrity metadata such as checksums and replicated data...". The volume manager, device driver and storage device controller can each perform independent integrity checks (checksums) on the data blocks (column 8, lines 41-43).


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Ehne whose telephone number is (571)-272-2471. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
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